

ASME PERFORMANCE TEST CODES

TABLE 3.1

PERMISSIBLE DEVIATION OF VARIABLES

Steady State Conditions
during test

Variable	Acceptable Deviation from Design *Permissible Deviation for the Average of the Test Conditions from Design or Rated Conditions	**Permissible Rapid Fluctuation from the Average Test Value During Any One Test Run
(a) Initial-steam pressure	± 3.0 percent of absolute pressure 2340 min press.	± 0.25 percent of the absolute pressure 4.6 psi or 5.0 psi (34.5 kPa), whichever is larger
(b) Initial and reheat-steam temperature	$\pm 15^{\circ}\text{F}$ (8°C) when superheat is 27°-50°F (15°-30°C); $\pm 30^{\circ}\text{F}$ (16°C) when superheat is in excess of 50°F (30°C)	$\pm 4^{\circ}\text{F}$ (2°C) where superheat is 27°-50°F (15°-30°C) $\pm 7^{\circ}\text{F}$ (4°C) where superheat is in excess of 50°F (30°C)
Initial-steam quality	± 0.5 percentage points of quality for turbines with wet throttle steam	± 0.1 percentage points of quality for turbines with wet throttle steam
(c) Primary flow	Not specified	Refer to Par. 4.49
(d) Secondary flows	± 5.0 percent $\times \frac{(\text{primary flow})}{(\text{secondary flow})}$	Same as (c) $\times \frac{(\text{primary flow})}{(\text{secondary flow})}$
(e) Pressure drop through reheater	± 50.0 percent	
Pressure drop through moisture separator	± 50.0 percent	
(f) Extraction pressures	± 5.0 percent	
(g) Extraction flows ***	± 5.0 percent	
(h) Temperature of feedwater leaving final heater	$\pm 10^{\circ}\text{F}$ (6°C)	
(i) Exhaust pressure ****	± 0.05 psi (0.34 kPa) or ± 2.5 percent of the absolute pressure, whichever is larger	± 0.02 psi (0.14 kPa) or ± 1.0 percent of the absolute pressure, whichever is larger.
(j) Output	Refer to Par. 3.04(e)	± 0.25 percent
(k) Voltage	± 5.0 percent	
(l) Power factor	Not specified	± 1.0 percent
(m) Speed	± 5.0 percent	± 0.25 percent
(n) Aggregate isentropic enthalpy drop of any one of the sections of an automatic-extraction turbine	± 10.0 percent	

* In any event, the manufacturer's allowable variations in pressure, temperature and speed are not to be exceeded, unless specifically agreed to before the test.

** A rapid fluctuation is one whose frequency is greater than twice the frequency of the readings.

*** When steam is extracted for feedwater heaters, the extraction pressures (which are fixed by the turbine design and flow conditions) may deviate from expected values by a few percent. This normally has a negligible effect upon the overall performance. It shall be ascertained that such deviations as do exist are not due to malfunctioning of feedwater heaters. If large deviations persist, agreement must be reached as to the course to be followed.

**** If it is not practicable to obtain design or rated exhaust pressure, the test may be conducted by agreement at another exhaust pressure, provided the exhaust-pressure correction is verified by test.